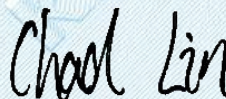


TEST REPORT

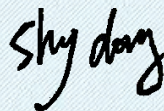
Report No..... : KS2407S3085E
FCC ID..... : 2BHXC-GHERO
Applicant..... : ShenZhen Ironcat Electronic Information Co.,Ltd
Address..... : RM2013,21/F,Block A,Xingzhan Plaza,No.446,Nan Huan Road, Shajing Town, Baoan District, Shenzhen,Guangdong, China518104
Manufacturer..... : DONGGUAN F&G ELECTRONIC CO., LTD
Address..... : Room 401,Building 13, No.1, Pushi 1st Road, Qiaotou Town, Dongguan City,Guangdong Province,China.
Product Name..... : Wireless Mouse
Model/Type reference..... : G HERO, FM-16, G HERO Pro, G HERO Ultra, GHERO, GHERO Pro
Standard..... : 47 CFR Part 15.249
Date of Receipt..... : July 24, 2024
Date of Test Date..... : July 24, 2024 to August 15, 2024
Date of issue..... : August 15, 2024
Test result..... : Pass

Conclusion..... : The submitted sample was found to COMPLY with the standards above.

Prepared by:
(Printed name + Signature) Chad Lin



Approved by:
(Printed name + Signature) Sky Dong



Testing Laboratory Name...: KSIGN(Guangdong) Testing Co., Ltd.

Address..... : West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

TABLE OF CONTENTS**Page**

1. TEST SUMMARY	3
1.1. Test Standards	3
1.2. Report Version	3
1.3. Test Description	4
1.4. Test Facility	5
1.5. Measurement Uncertainty	5
2. GENERAL INFORMATION	6
2.1. General Description Of EUT	6
2.2. Accessory Equipment Information	6
2.3. Description of Test Modes	6
2.4. Operation channel list	7
2.5. Measurement Instruments List	8
3. Evaluation Results (Evaluation)	10
3.1. Antenna requirement	10
4. Radio Spectrum Matter Test Results (RF)	10
4.1. Conducted Emission at AC power line	10
4.2. Occupied Bandwidth/20dB Occupied Bandwidth	14
4.3. Field strength of fundamental	18
4.4. Band edge emissions (Radiated)	20
4.5. Emissions in frequency bands (below 1GHz)	25
4.6. Emissions in frequency bands (above 1GHz)	29
5. EUT TEST PHOTOS	37
6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL	39

1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

47 CFR Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz

ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

1.2. Report Version

Revised No.	Date of issue	Description
01	August 15, 2024	Original

1.3. Test Description

Test Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.249	47 CFR Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.249	47 CFR 15.207(a)	Pass
Occupied Bandwidth 20dB Occupied Bandwidth	47 CFR Part 15.249	47 CFR 15.215(c)	Pass
Field strength of fundamental	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(b)(1)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.249	47 CFR 15.249(d)	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass

1.4. Test Facility

KSIGN(Guangdong) Testing Co., Ltd .

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L 13261

KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5457.01

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED# : 25693 CAB identifier.: CN0096

KSIGN(Guangdong) Testing Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

FCC-Registration No.: 294912 Designation Number: CN1328

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

1.5. Measurement Uncertainty

Test Items	Measurement Uncertainty
Conducted Emission (150k-30MHz)	± 3.34dB
RSE (1-18GHz)	± 4.68dB
RSE (30-1000MHz)	± 5.7dB
RSE (18-40GHz)	± 5.18dB

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %. Otherwise required by the applicant or Product Regulations. Decision Rule in this report did not consider the uncertainty.

2. GENERAL INFORMATION

2.1. General Description Of EUT

Test Sample Number:	1-1(Normal Sample), 1-2(Engineering Sample)
Product Name:	Wireless Mouse
Model / Type reference:	G HERO, FM-16, G HERO Pro, G HERO Ultra, GHERO, GHERO Pro
Model difference:	The only difference product models is models name. Different model names are available to meet market demands. Other power supply methods, appearance, internal structures, circuits and key components are the same, and do not affect safety and electromagnetic compatibility performance. According to the above information, all tests were performed on G HERO.
Power Supply:	DC 3.7V from battery
Operation Frequency:	2405-2476MHz
Number of Channels:	12
Modulation Type:	GFSK
Antenna Type:	PCB
Antenna Gain:	-2.39dBi
Max Power:	83.82dBuV/m
Hardware Version:	VER1.1
Software Version:	V1.0

Note:Antenna gain provided by the applicant Can affect the validity of results

2.2. Accessory Equipment Information

Title	Manufacturer	Model No.	Technical Parameters	Provided by
Computer	HP	15-cd028AX	/	Laboratory

2.3. Description of Test Modes

No.	Title	Description of Mode
Test Mode1	Tx	Keep EUT in the transmitting mode

2.4. Operation channel list

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405	11	2474
2	2407	12	2476
3	2408	/	/
4	2422	/	/
5	2423	/	/
6	2427	/	/
7	2447	/	/
8	2451	/	/
9	2452	/	/
10	2473	/	/

2.5. Measurement Instruments List

Conducted Emission at AC power line				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
LISN	R&S	ENV432	1326.6105.02	2025-01-19
EMI Test Receiver	R&S	ESR	102524	2025-01-19
Manual RF Switch	JS TOYO	/	MSW-01/002	2025-01-19
ISN CAT6	Schwarzbeck	CAT5 8158	227	2025-01-19
Color Signal Generator	Philips	PM5418	672926	2025-01-19
Power Absorbing Clamp	R&S	MDS-21	100925	2025-01-21
TV Tuner	SUNLIGHT	ST5075	/	2024-12-12
LISN	EVERFINE	LS-5	G657431CD14311 12	2025-01-19
Current Sensor Probe	Beijin ZHINAN	ZN23101	23013	2024-12-12
PV Artificial power network	Beijing KeHuan	KH8301	830120007	2025-07-23

Occupied Bandwidth				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2025-01-19
Audio Analyzer	R&S	UPL16	100001	2025-01-19
Shielding box	Gxiong	GX-5915A	2201113	2025-01-19
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2025-01-19
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2025-01-19
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2025-01-19
Coaxial Cable	BEBES	A40-2.92M2.92F- 4.5M	1907021	2025-01-19
Hygrothermograph	Anymetre	JB913	/	2025-01-19
Climate Chamber	Angul	AGNH80L	1903042120	2025-01-19
Spectrum Analyzer	HP	8593E	3831U02087	2025-01-19
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2025-01-19
RF Control Unit	Tonscend	JS0806-2	/	2025-01-19
Analog Signal Generator	HP	83752A	3344A00337	2025-01-19
Vector Signal Generator	Agilent	N5182A	MY50142520	2025-01-19
Wideband Radio Communication Tester	R&S	CMW500	157282	2025-01-19
Spectrum Analyzer	R&S	FSV40-N	101798	2025-01-19

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Field strength of fundamental Band edge emissions (Radiated) Emissions in frequency bands (below 1GHz) Emissions in frequency bands (above 1GHz)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2025-01-19
Log Periodic Antenna	Schwarzbeck	VULB 9163	1230	2025-01-29
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2025-01-19
Broadcast Television Signal Generator	R&S	SFE100	141038	2025-01-19
Analog Signal Generator	Agilent	8648A	3847M00445	2025-01-19
EMI Test Receiver	R&S	ESR	102525	2025-01-19
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2025-01-29
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2025-01-21
Pre-Amplifier	EMCI	EMC051835SE	980662	2025-01-19
Spectrum Analyzer	Keysight	N9020A	MY46471971	2025-01-19

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou,
Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

3. Evaluation Results (Evaluation)

3.1. Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
Conclusion:	The EUT uses a PCB antenna, the max antenna gain less than 6dBi, which is deemed to comply with the antenna requirement.

4. Radio Spectrum Matter Test Results (RF)

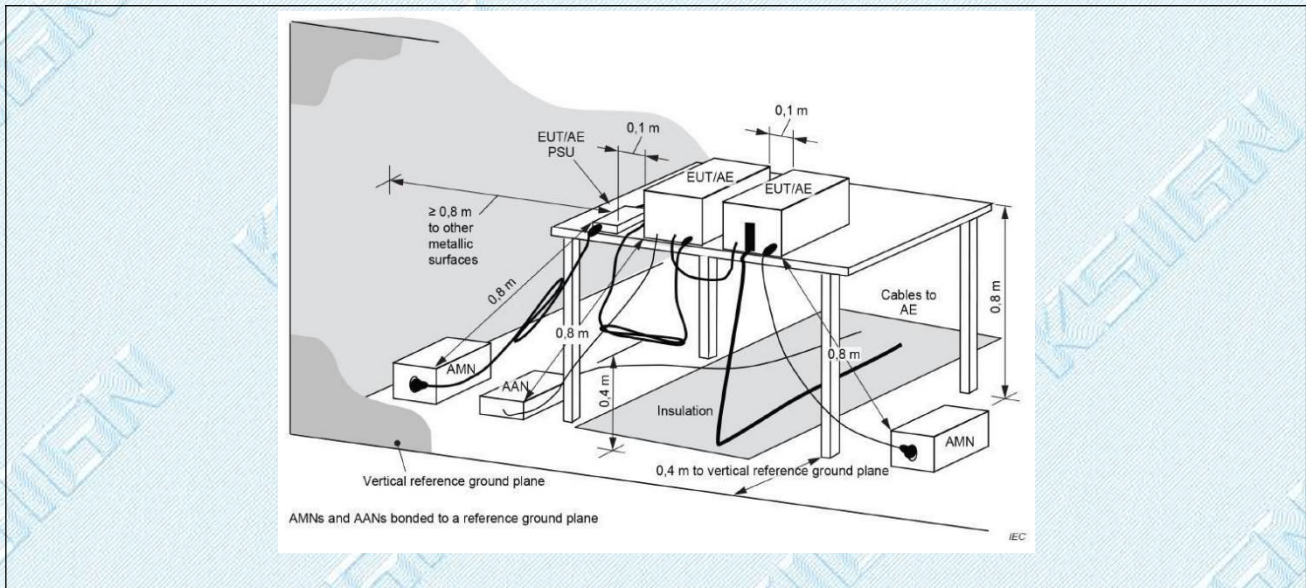
4.1. Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method:	ANSI C63.10-2013 section 6.2		
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

4.1.1. E.U.T. Operation:

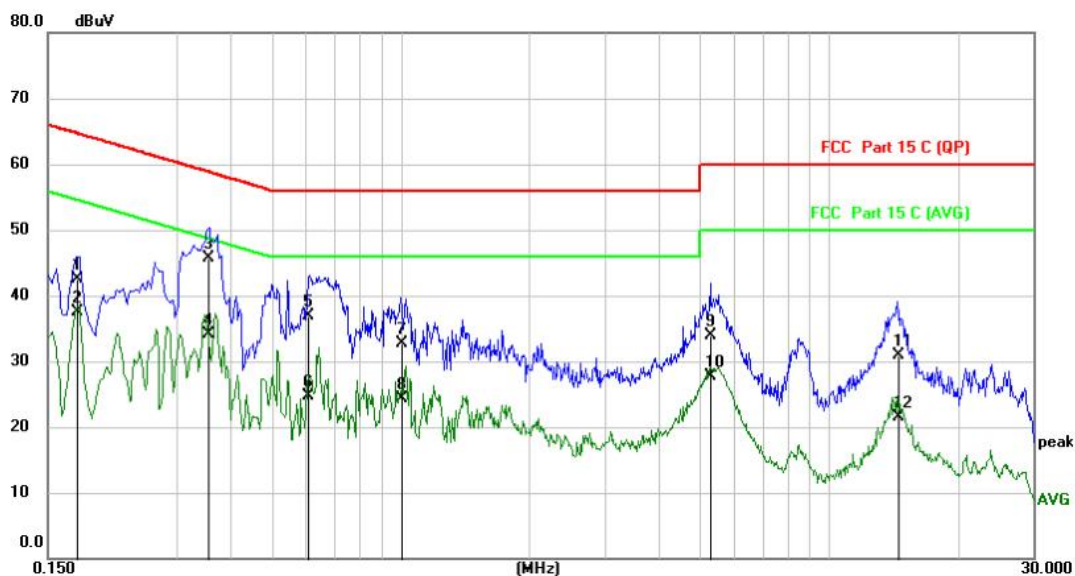
Operating Environment:	
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.1.2. Test Setup Diagram:



4.1.3. Test Data:

Test Mode1 / Line: Line / Band: 2.4G / BW: 1 / CH: L

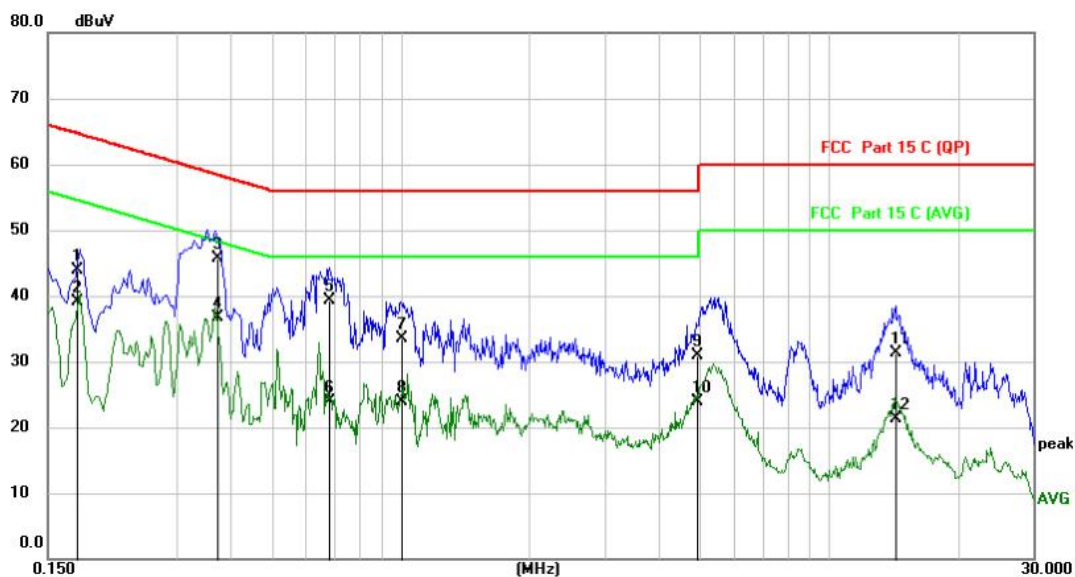


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1754	21.71	20.71	42.42	64.70	-22.28	QP	
2	0.1754	16.76	20.71	37.47	54.70	-17.23	AVG	
3 *	0.3556	24.91	20.72	45.63	58.83	-13.20	QP	
4	0.3556	13.39	20.72	34.11	48.83	-14.72	AVG	
5	0.6079	16.21	20.73	36.94	56.00	-19.06	QP	
6	0.6079	3.88	20.73	24.61	46.00	-21.39	AVG	
7	1.0010	11.91	20.76	32.67	56.00	-23.33	QP	
8	1.0010	3.53	20.76	24.29	46.00	-21.71	AVG	
9	5.2879	13.11	20.88	33.99	60.00	-26.01	QP	
10	5.2879	6.83	20.88	27.71	50.00	-22.29	AVG	
11	14.4628	9.53	21.44	30.97	60.00	-29.03	QP	
12	14.4628	0.01	21.44	21.45	50.00	-28.55	AVG	

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Test Mode1 / Line: Neutral / Band: 2.4G / BW: 1 / CH: L


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1754	23.28	20.70	43.98	64.70	-20.72	QP	
2	0.1754	18.41	20.70	39.11	54.70	-15.59	AVG	
3	0.3721	25.03	20.71	45.74	58.45	-12.71	QP	
4 *	0.3721	15.98	20.71	36.69	48.45	-11.76	AVG	
5	0.6818	18.60	20.73	39.33	56.00	-16.67	QP	
6	0.6818	3.23	20.73	23.96	46.00	-22.04	AVG	
7	1.0005	12.65	20.76	33.41	56.00	-22.59	QP	
8	1.0005	3.22	20.76	23.98	46.00	-22.02	AVG	
9	4.9245	10.13	20.85	30.98	56.00	-25.02	QP	
10	4.9245	3.02	20.85	23.87	46.00	-22.13	AVG	
11	14.3249	9.96	21.30	31.26	60.00	-28.74	QP	
12	14.3249	0.02	21.30	21.32	50.00	-28.68	AVG	

Note:

1.Measurement = Reading level + Correct Factor

2.Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

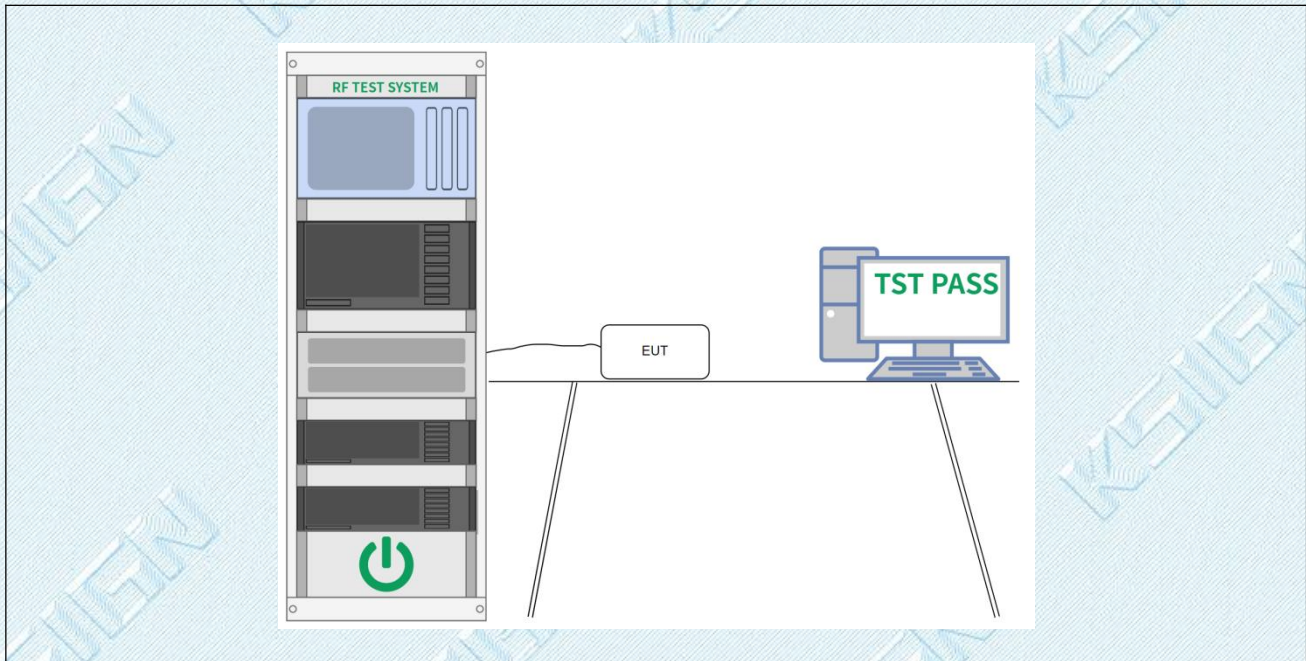
4.2. Occupied Bandwidth/20dB Occupied Bandwidth

Test Requirement:	47 CFR 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - xx]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth. k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.2.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

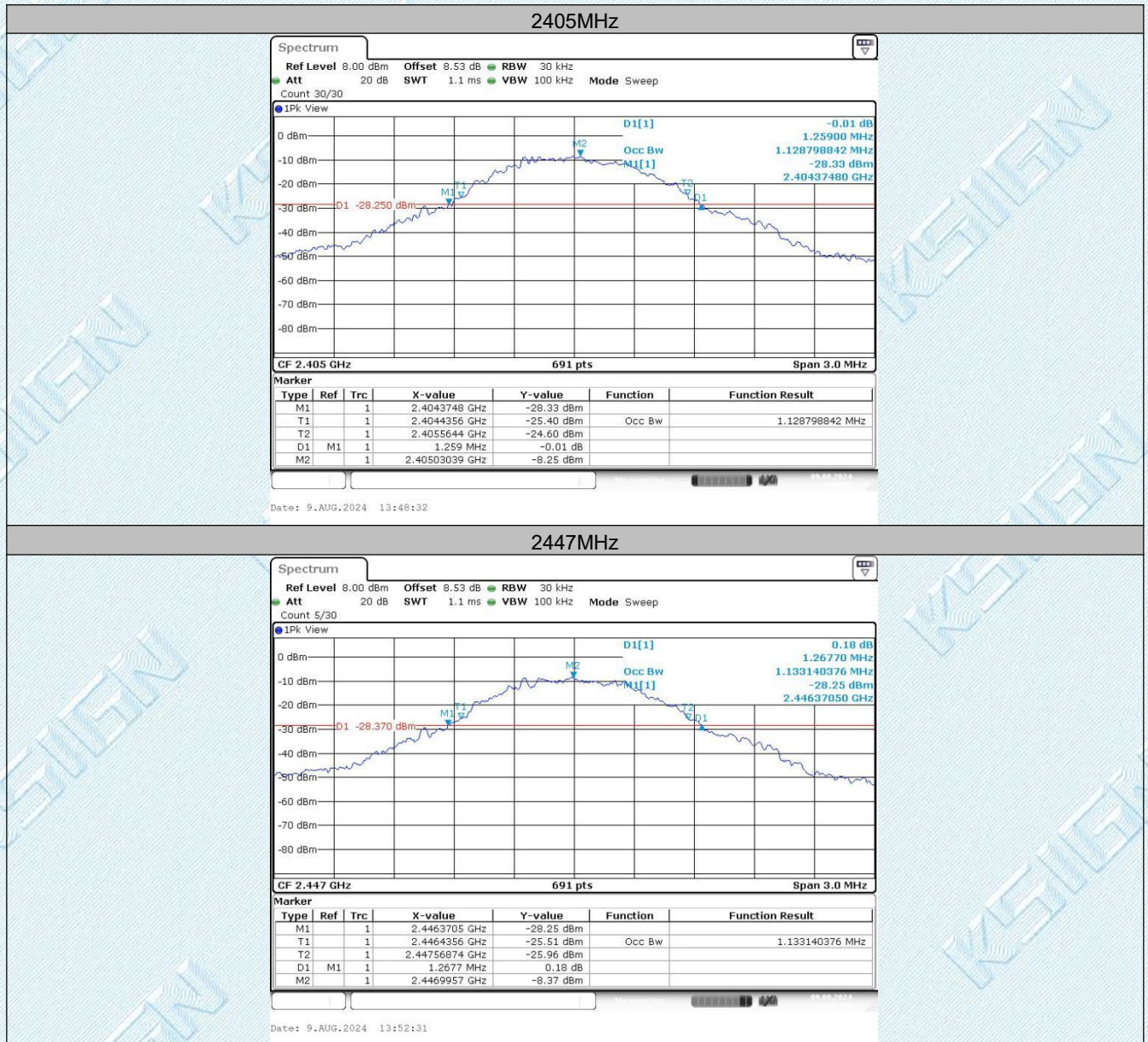
4.2.2. Test Setup Diagram:



4.2.3. Test Data:

TestMode	Antenna	Freq(MHz)	99% OCB[MHz]	20dB OCB [MHz]	Verdict
2.4GSRD	Ant1	2405	1.129	1.259	Pass
		2447	1.133	1.268	Pass
		2476	1.103	1.246	Pass

4.2.4. Test Graphs



TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com



TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

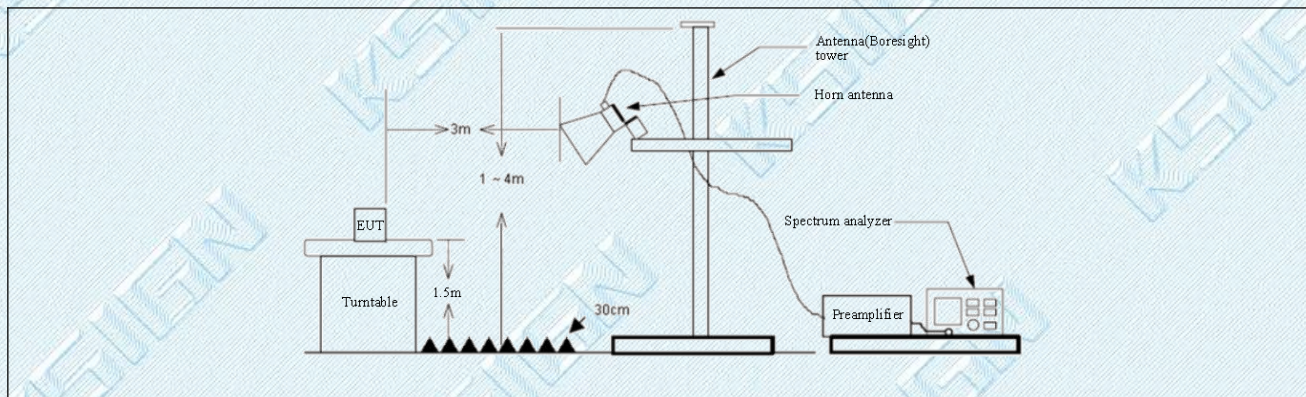
4.3. Field strength of fundamental

Test Requirement:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:		
	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24.0-24.25 GHz	250	2500
The field strength of emissions in this band shall not exceed 2500 millivolts/meter.			
Test Method:	ANSI C63.10-2013 section 6.6		
Procedure:	ANSI C63.10-2013 section 6.6		

4.3.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.3.2. Test Setup Diagram:



4.3.3. Test Data:

Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dBuV/m)	Polarization	Test value
2405	82.94	0.88	83.82	114	-30.18	Horizontal	Peak
2447	81.61	0.85	82.46	114	-31.54	Horizontal	Peak
2476	69.44	0.73	70.17	114	-43.83	Horizontal	Peak
2405	64.29	0.88	65.17	94	-28.83	Horizontal	AVG
2447	62.76	0.85	63.61	94	-30.39	Horizontal	AVG
2476	54.74	0.73	55.47	94	-38.53	Horizontal	AVG

Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dBuV/m)	Polarization	Test value
2405	78.39	0.88	79.27	114	-34.73	Vertical	Peak
2447	71.24	0.85	72.09	114	-41.91	Vertical	Peak
2476	54.71	0.73	55.44	114	-58.56	Vertical	Peak
2405	56.47	0.88	57.35	94	-36.65	Vertical	AVG
2447	52.42	0.85	53.27	94	-40.73	Vertical	AVG
2476	42.69	0.73	43.42	94	-50.58	Vertical	AVG

Note:

1. Correct Factor = Antenna Factor + Cable Loss - Preamplifier Factor.

2. Level = Read Level + Correct Factor.

3. Over = Level - Limit

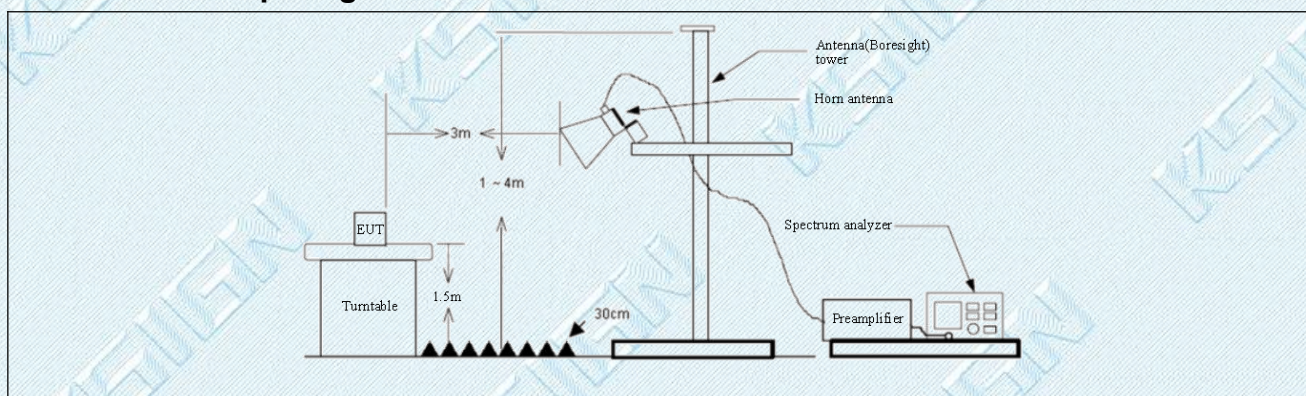
4.4. Band edge emissions (Radiated)

Test Requirement:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
Test Limit:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.			
Test Method:	ANSI C63.10-2013 section 6.6.4		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.4.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.4.2. Test Setup Diagram:



4.4.3. Test Data:

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L

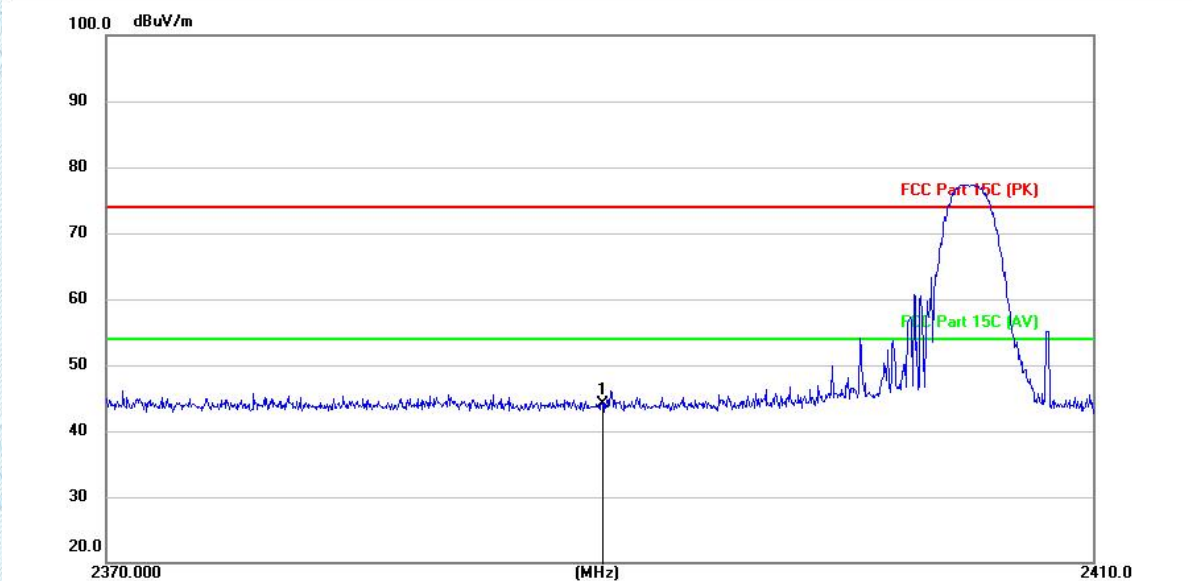


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2388.112	48.88	0.90	49.78	74.00	-24.22	peak
2		2390.000	44.38	0.90	45.28	74.00	-28.72	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

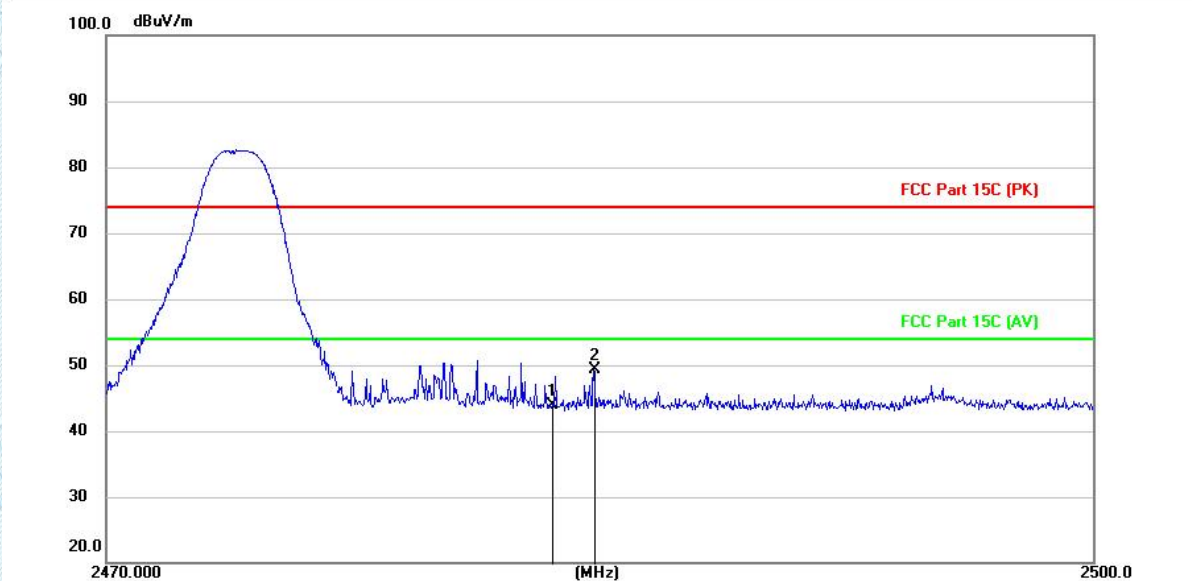
Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2390.000	43.19	0.90	44.09	74.00	-29.91	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

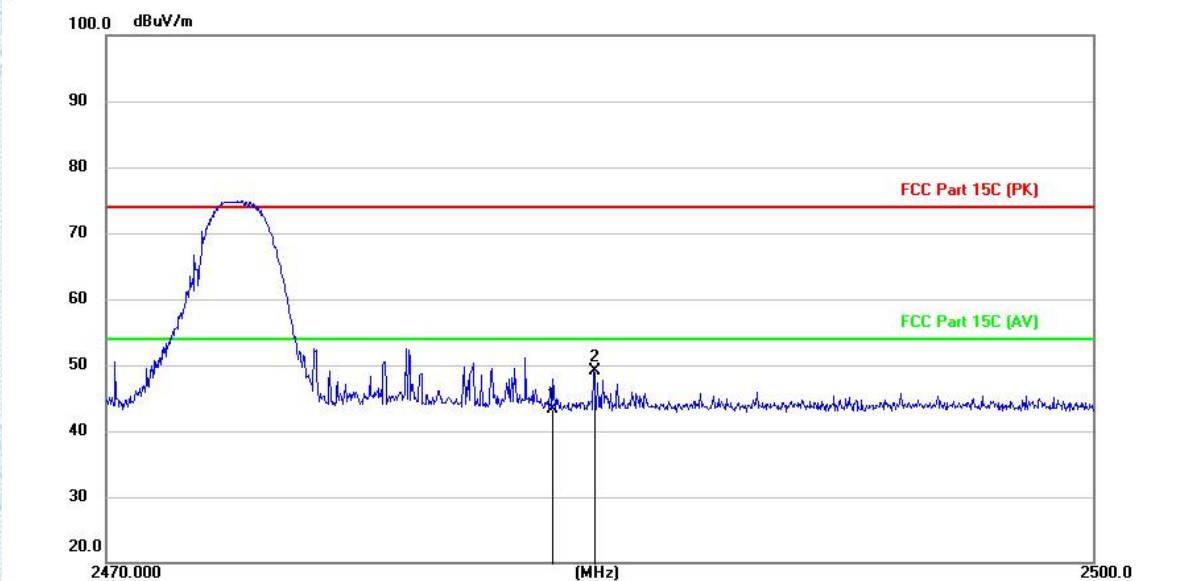
Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2483.500	43.27	0.69	43.96	74.00	-30.04	peak
2	*	2484.793	48.59	0.68	49.27	74.00	-24.73	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2483.500	42.58	0.69	43.27	74.00	-30.73	peak
2	*	2484.781	48.45	0.68	49.13	74.00	-24.87	peak

Note:

- 1.Measurement = Reading + Factor
- 2.Factor = Antenna Factor + Cable loss - Pre Amplifier gain
- 3.Over = Measurement – Limit
- 4.Since the peak value is less than the limit of the AVG value, there is no AVG data

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

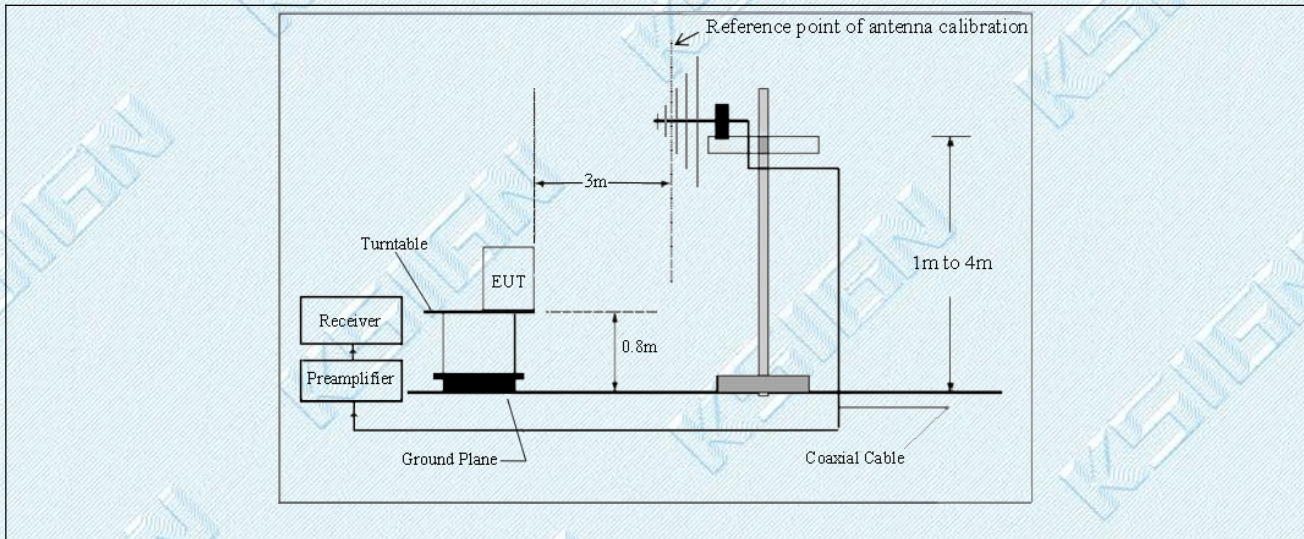
4.5. Emissions in frequency bands (below 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)																										
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:																										
	<table><tr><th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr><tr><td>902-928 MHz</td><td>50</td><td>500</td></tr><tr><td>2400-2483.5 MHz</td><td>50</td><td>500</td></tr><tr><td>5725-5875 MHz</td><td>50</td><td>500</td></tr><tr><td>24.0-24.25 GHz</td><td>250</td><td>2500</td></tr></table>			Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500									
	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																								
	902-928 MHz	50	500																								
	2400-2483.5 MHz	50	500																								
	5725-5875 MHz	50	500																								
	24.0-24.25 GHz	250	2500																								
	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.																										
	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table>			Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																								
0.009-0.490	2400/F(kHz)	300																									
0.490-1.705	24000/F(kHz)	30																									
1.705-30.0	30	30																									
30-88	100 **	3																									
88-216	150 **	3																									
216-960	200 **	3																									
Above 960	500	3																									
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.																											
Test Method:	ANSI C63.10-2013 section 6.5																										
Procedure:	ANSI C63.10-2013 section 6.5																										

4.5.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.5.2. Test Setup Diagram:



4.5.3. Test Data:

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L

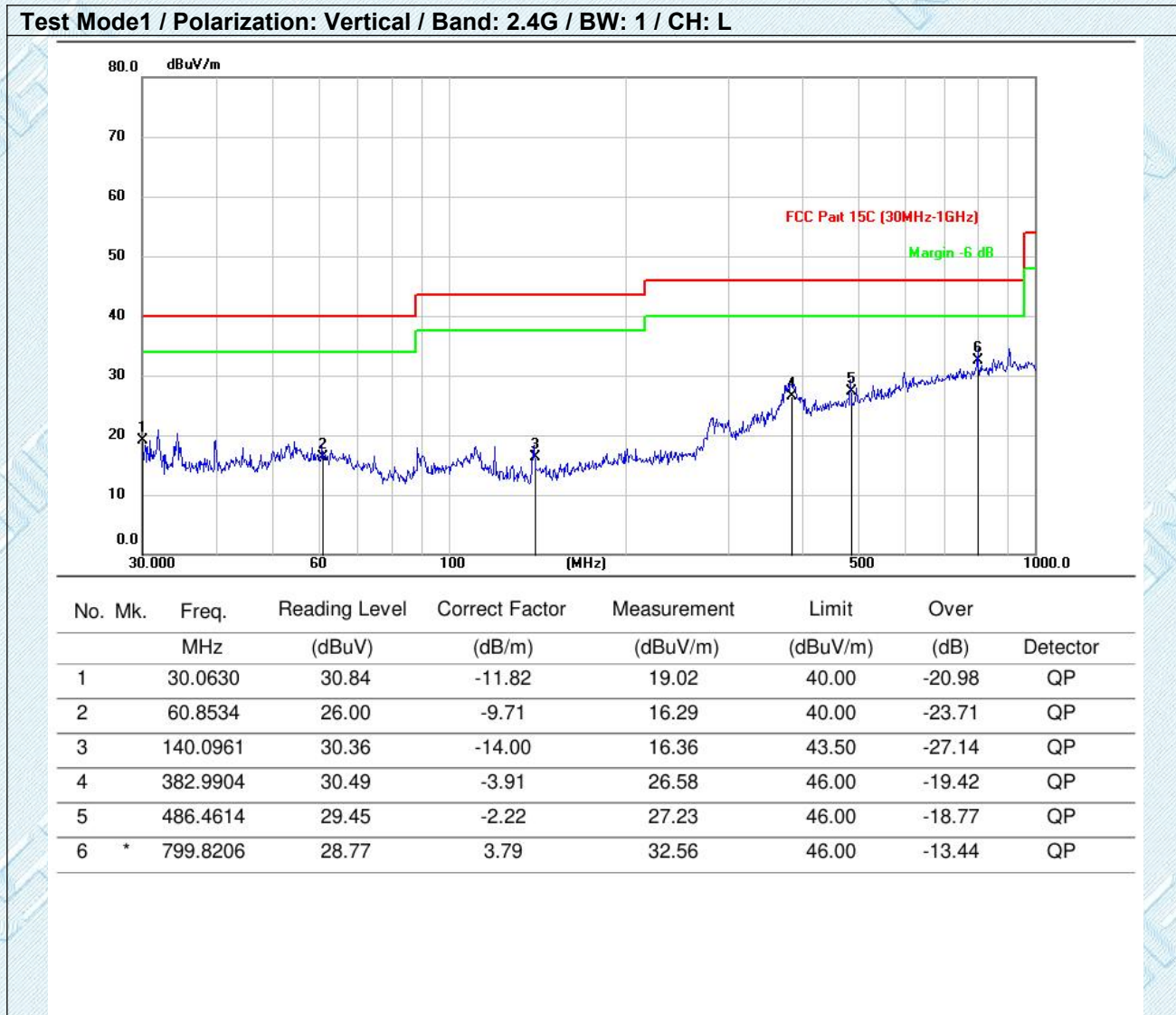


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		52.6674	25.39	-9.92	15.47	40.00	-24.53	QP
2		62.0820	25.81	-9.79	16.02	40.00	-23.98	QP
3		140.2927	33.31	-14.02	19.29	43.50	-24.21	QP
4		293.9075	35.42	-8.54	26.88	46.00	-19.12	QP
5		362.4755	30.40	-5.11	25.29	46.00	-20.71	QP
6	*	797.5801	30.64	3.65	34.29	46.00	-11.71	QP

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com



9 KHz - 30 MHz:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Note:

1.Measurement = Reading level + Correct Factor

2.Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

4.6. Emissions in frequency bands (above 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)																										
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:																										
	<table><tr><th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr><tr><td>902-928 MHz</td><td>50</td><td>500</td></tr><tr><td>2400-2483.5 MHz</td><td>50</td><td>500</td></tr><tr><td>5725-5875 MHz</td><td>50</td><td>500</td></tr><tr><td>24.0-24.25 GHz</td><td>250</td><td>2500</td></tr></table>			Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500									
	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																								
	902-928 MHz	50	500																								
	2400-2483.5 MHz	50	500																								
	5725-5875 MHz	50	500																								
	24.0-24.25 GHz	250	2500																								
	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.																										
	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table>			Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																								
0.009-0.490	2400/F(kHz)	300																									
0.490-1.705	24000/F(kHz)	30																									
1.705-30.0	30	30																									
30-88	100 **	3																									
88-216	150 **	3																									
216-960	200 **	3																									
Above 960	500	3																									
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.																											
In the emission table above, the tighter limit applies at the band edges.																											
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.																											
As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits.																											
However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.																											
Test Method:	ANSI C63.10-2013 section 6.6																										
Procedure:	ANSI C63.10-2013 section 6.6																										

4.6.1. E.U.T. Operation:

Operating Environment:

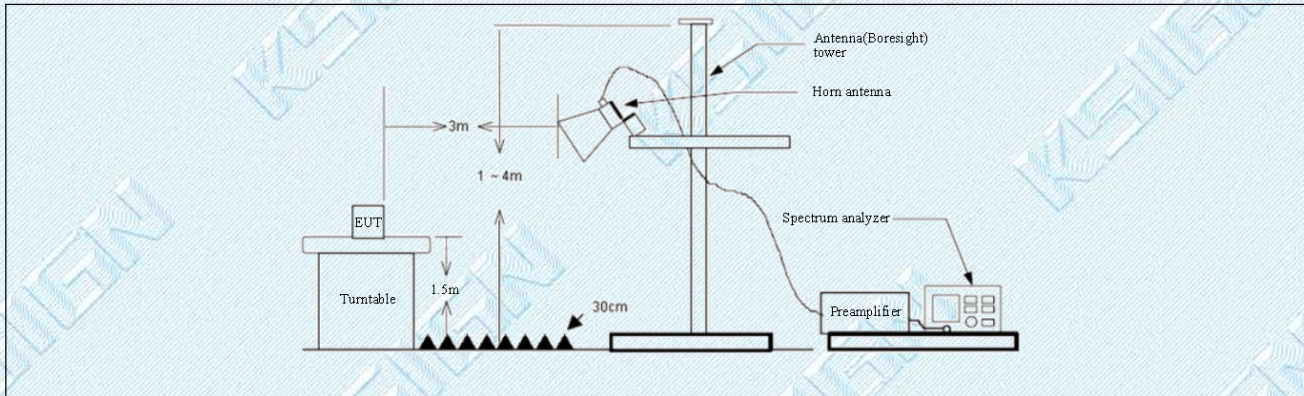
TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

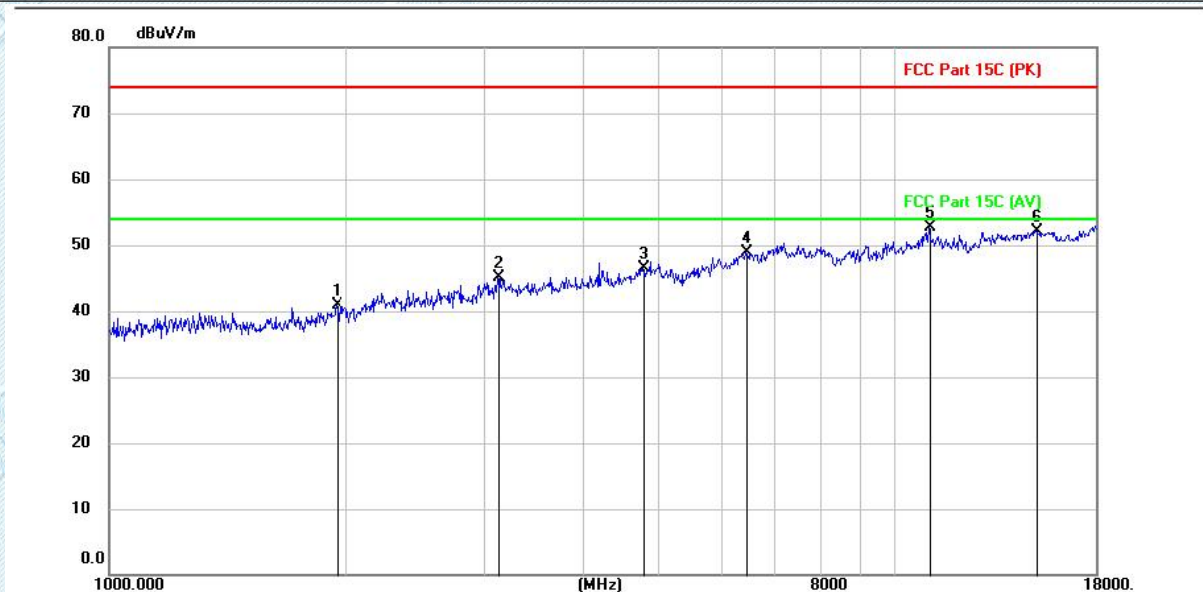
Temperature:	24.2 °C
Humidity:	53.6 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.6.2. Test Setup Diagram:



4.6.3. Test Data:

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L

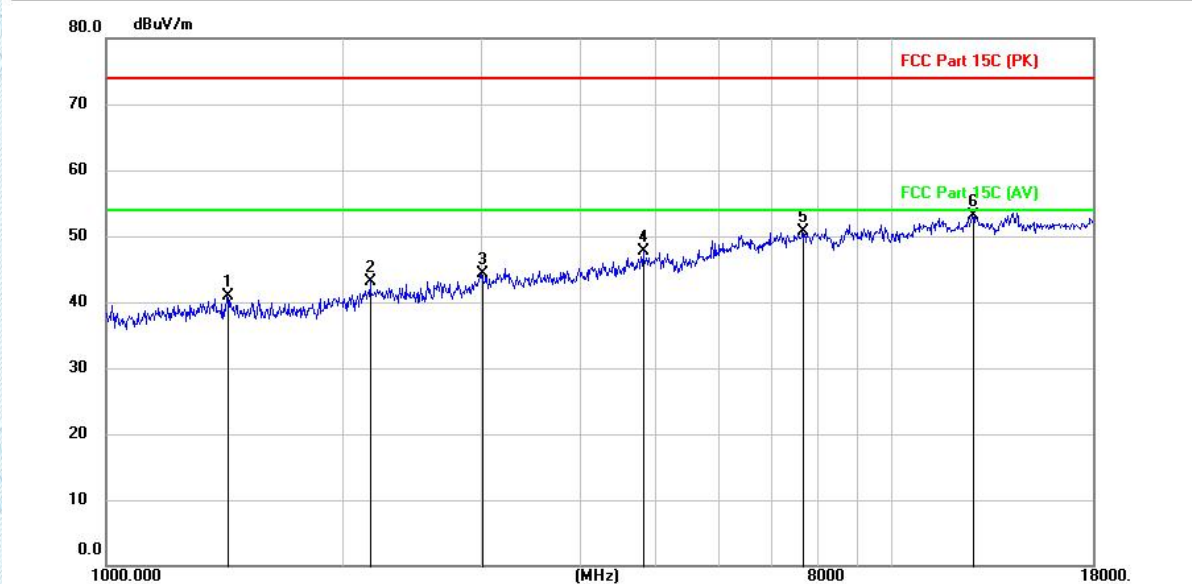


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1945.200	41.60	-0.69	40.91	74.00	-33.09	peak
2		3130.100	43.63	1.45	45.08	74.00	-28.92	peak
3		4785.900	42.60	3.92	46.52	74.00	-27.48	peak
4		6460.400	41.69	7.25	48.94	74.00	-25.06	peak
5	*	11072.500	38.92	13.71	52.63	74.00	-21.37	peak
6		15110.000	36.36	15.70	52.06	74.00	-21.94	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1426.700	42.27	-1.36	40.91	74.00	-33.09	peak
2		2174.700	41.95	1.12	43.07	74.00	-30.93	peak
3		3014.500	42.97	1.41	44.38	74.00	-29.62	peak
4		4821.600	43.67	4.06	47.73	74.00	-26.27	peak
5		7674.200	40.90	9.78	50.68	74.00	-23.32	peak
6	*	12672.200	39.04	14.01	53.05	74.00	-20.95	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: M


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1363.800	41.63	-1.10	40.53	74.00	-33.47	peak
2		2246.100	42.35	1.36	43.71	74.00	-30.29	peak
3		3536.400	43.86	1.59	45.45	74.00	-28.55	peak
4		6621.900	42.63	7.76	50.39	74.00	-23.61	peak
5		11079.300	39.38	13.68	53.06	74.00	-20.94	peak
6	*	14118.900	36.30	16.87	53.17	74.00	-20.83	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: M


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1363.800	41.63	-1.10	40.53	74.00	-33.47	peak
2		2246.100	42.35	1.36	43.71	74.00	-30.29	peak
3		2958.400	43.13	1.23	44.36	74.00	-29.64	peak
4		5800.800	43.39	4.83	48.22	74.00	-25.78	peak
5		8148.500	40.87	10.95	51.82	74.00	-22.18	peak
6	*	13056.400	37.40	15.64	53.04	74.00	-20.96	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

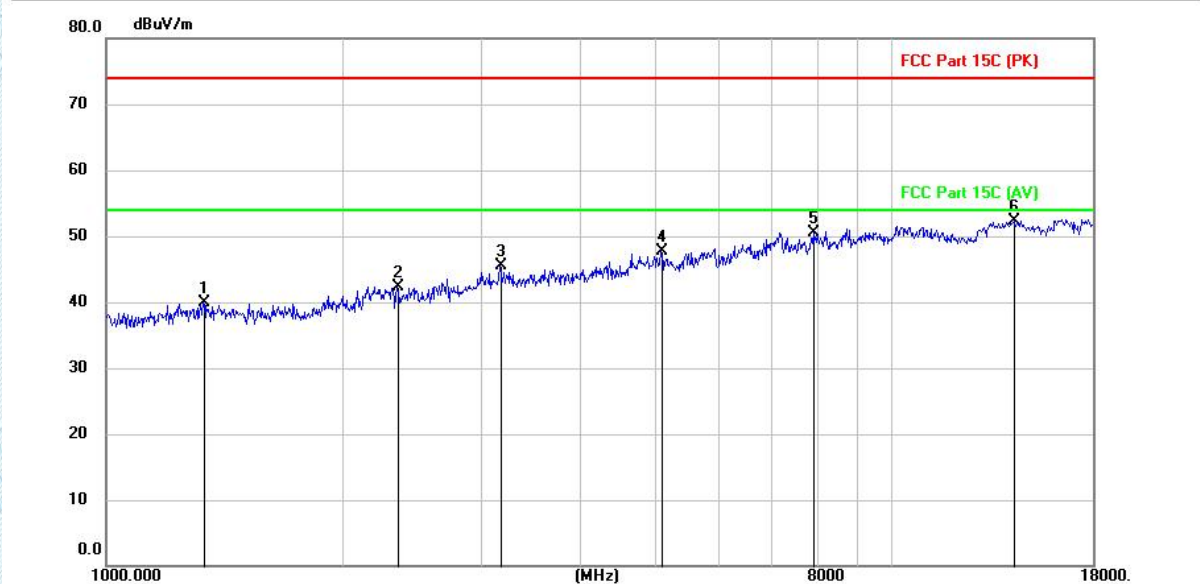
Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1278.800	41.93	-1.39	40.54	74.00	-33.46	peak
2		2215.500	41.85	1.43	43.28	74.00	-30.72	peak
3		3204.900	44.68	1.49	46.17	74.00	-27.83	peak
4		5850.100	43.26	5.14	48.40	74.00	-25.60	peak
5		7091.100	41.76	9.96	51.72	74.00	-22.28	peak
6	*	14057.700	36.70	16.62	53.32	74.00	-20.68	peak

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		1328.100	41.08	-1.13	39.95	74.00	-34.05	peak
2		2348.100	41.42	0.93	42.35	74.00	-31.65	peak
3		3172.600	44.01	1.50	45.51	74.00	-28.49	peak
4		5088.500	43.03	4.65	47.68	74.00	-26.32	peak
5		7922.400	39.61	10.92	50.53	74.00	-23.47	peak
6	*	14314.400	34.97	17.32	52.29	74.00	-21.71	peak

Note:

- 1.Measurement = Reading + Factor
- 2.Factor = Antenna Factor + Cable loss - Pre Amplifier gain
- 3.Over = Measurement – Limit
- 4.18GHz-26.5GHz is the background of the site, there is no radiated spurious.
- 5.Since the peak value is less than the limit of the AVG value, there is no AVG data

TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

5. EUT TEST PHOTOS

Conducted Emission at AC power line



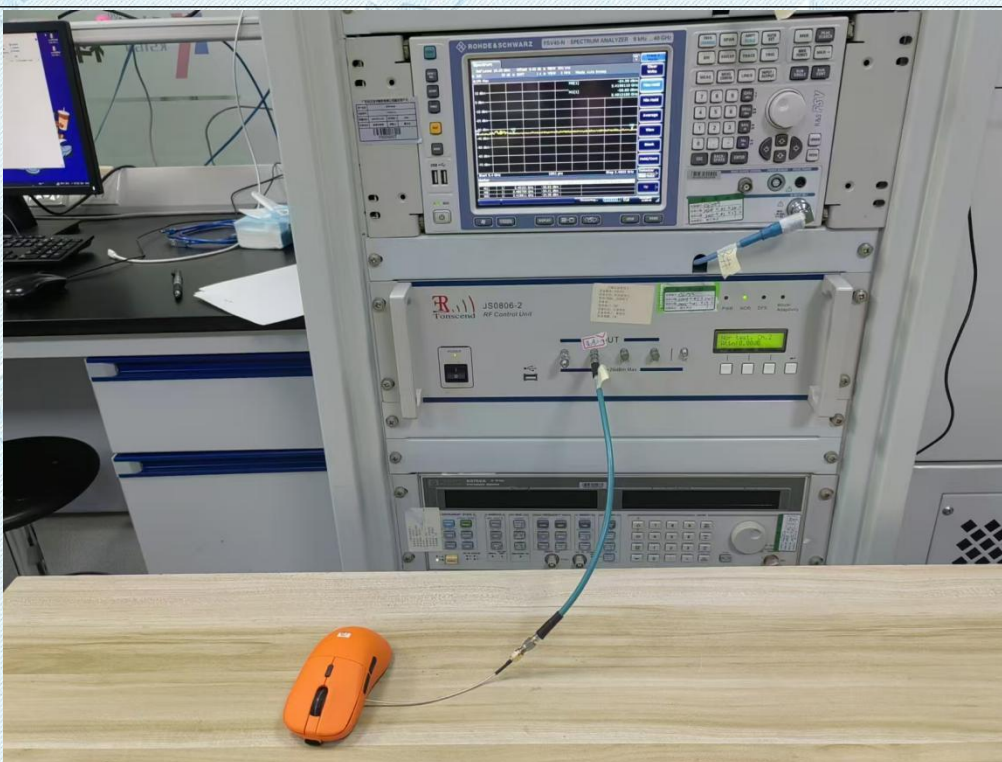
Emissions in frequency bands (below 1GHz)



Emissions in frequency bands (above 1GHz)



RF



TRF No. RF_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Refer to Appendix - EUT Photos for KS2407S3085E.

--THE END--

Important Notice

1. The results are valid only for the samples submitted.
2. The report is invalid without the "APPROVED Seal" and the "Riding Seam Seal".
3. This report is invalid without the signature of the main inspector, reviewer, or approver.
4. The testing report cannot be partially copied without the written consent of our laboratory.
5. If the report is not stamped with the "CMA" logo, it indicates that the report does not have any social certification effect in China.
6. Product information, customer information, and sample sources are all provided by the client, and we are not responsible for their authenticity.
7. The inspection basis or inspection items marked with "★" are not within the scope of CNAS, CMA and A2LA accreditation in this laboratory.
8. Reports that are transferred, copied, stolen, impersonated, altered, or tampered with in any media form without authorization are invalid.
9. If you have any objections to this report, you can appeal to our unit within 15 days after receiving the report. Failure to do so will not be accepted.
10. For situations where compliance decision needs to be made based on test result, such as when there are no relevant decision rules required by the regulations, standards, or technical specifications used, or when there are no relevant customer requirements, the report issued by our laboratory refer to ILAC-G8:09-2019 and CNAS-GL015:2022 using simple acceptance decision rules.

Laboratory: KSIGN(Guangdong) Testing Co., Ltd.

Address: First Floor West Side, Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu Village, Shatou Community, Shajing Street, Bao'an District, Shenzhen City, Guangdong Province, P. R. China. 518104

Tel.: +(86) 0755-29852678

Fax.: +(86) 0755-29852397

E-mail: info@gdksign.cn

Web: www.gdksign.com